The Indian ICT Industry: Current Trends and Future Challenges

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What is CITNE?

- ISB’s latest “Centre of Excellence”
  - Wadhwan Centre for Entrepreneurship Development
  - Centre for Analytic Finance
  - Centre for Global Logistics and Manufacturing Strategies
  - Centre for IT and the Networked Economy (CITNE)
- CITNE is a interdisciplinary research centre
  - Rigorous, relevant and impactful ICT centric research
  - Worldwide Information Systems (IS) research community
- Mission
  - Foster ICT centric research and education
    - a) to propel the Indian ICT industry to the next level globally,
    - b) the promote the country’s economic development

India Inc. - Some Facts

- India’s GDP has grown at nearly twice the global rate over past 20 years
- Steady annual growth in real GDP, industrial production and domestic demand of 5-6%
- Sustained real growth in foreign investment inflows (FDI and FII) since economic liberalization (1991)
- Cumulative foreign reserves of ~USD 150bn

Projected High Growth

The Indian School of Business

- Research driven, globally focused B-School
- Kellogg, Wharton play an active role
  - All area leaders are from Kellogg and Wharton
- “Innovative” portfolio faculty model
  - Steady state
    - 60-70% coursework taught by resident faculty
    - Currently
      - 20-40% taught by thought leaders from global B-schools
  - Tenure system
    - Managed by an area leader from Kellogg/Wharton
    - Comparable to the top 25 US research B-schools
- Student body
  - Post Graduate Program (420)
  - Executive Education Program (growing rapidly)

Agenda

- India Inc. Background
  - An Agrarian to a Service Based Economy
- Growth of IT/ITeS Sector
  - The Global Delivery Model
  - Operational Excellence
- Current Trends and Challenges
  - The Domestic Market
  - CASE - e-Choupal: Towards an Inward Looking IT Revolution
  - Educational Reform
  - Talent Gap
  - Research
  - Industry Academia Linkages
- Emerging Opportunities
  - Knowledge Intensive Services
  - R&D
A maturing economy led by high growth in services...

Over the last decade the Indian economy has transitioned from an agrarian economy to a predominantly services-based economy.

Key services sectors include personal services, trade, hotels, banking, communications, and business services.

Progressive liberalization and increasing investor confidence...

Changing composition of India’s GDP

Includes IT-ITES

Key milestones

- Y2K
- Brain drain
- H1B consultant
- Satyam’s John Deere Apt. “Offshore”
- Global delivery model
- Quality
- CMM
- Operational Excellence
- Capfies
- GE/CIS → Now Genpact
- Bandwagon effect
- Strategic partnerships
- Accenture for full circle client relationships
- Accenture now poaches INFP engineers in Europe
- Reverse brain drain

Heightened global commercial interest

Top 5 recipient countries in strongest FDI sectors

Source: IBM-PLI – Global Investment Locations Database, GILD

Indian IT - Market Structure

The industry has a pyramid structure
- Tier 1 players (i.e., Top 5 firms) account for 44% of total software exports
- Tier 2 players account for 18% of the industry
- MNC Captives account for 31% of the industry
- Focused players account for 4% of the industry and
- Small players (Rs 100 crores) account for 4% of the industry

Source: Nasscom
In 2005, the big three Indian IT services firms - Infosys, Tata Consultancy Services (TCS), Wipro - surpassed $2 billion in revenue and reported an astounding compound annual growth rate of more than 30 percent.

Approximately 2/3rd of the Fortune 500 companies source IT-ITES services from India. Offshore outsourcing is being actively embraced by not only large organizations but also middle market companies in the US. Competition from Multi National IT services providers who are setting up offshore presence aggressively.

The Build-Operate-Transfer (BOT) model appears to be gaining momentum.

Revenue brain drain with 500s of Indians returning to India after years of leadership roles in Silicon Valley start-ups and technology MNCs.

India becoming APAC hub for many MNCs (SAP Labs, Nokia, AOS, Cisco). Besides, many Asia-Pacific companies leveraging India better (LG Soft, Samsung R&D, Sony R&D, D-Link, Huawei).

Indian IT-ITES sector grew by 28% in FY06 and currently accounts for 4.6% of the country’s GDP. Sector revenue exceeded USD 36bn in FY06 - growing at a 25% CAGR over the past decade. Exports account for nearly two-thirds of the total - growing at a 36% CAGR over the past decade. Industry employment exceeds 1,293,000 - a net addition of over 1 million employees over the past six years alone.

ICT services exports lead, accounting for 35% of the total, growing at 32-33% (FY06E).

ITES-BPO exports* to grow by 37%, estimated to reach USD 6.3bn (FY06E).

* Reclassified to exclude services now included under engineering and R&D.

Source: NASSCOM.
Positive outlook for Indian IT-ITES; industry set to achieve targets for 2010

**DOMESTIC MARKET** | **EXPORTS**
---|---
USD Billion: | 
1.7 | 2.6 |
2.5 | 3.7 |
3.7 | 5.9 |
5.3 | 8.8 |
7.7 | 10.2 |
10.2 | 12.5 |
12.5 | 15.4 |
15.4 | 18.3 |

* Estimates for software and services only. Does not include estimates for hardware.

Source: NASSCOM

India’s pillars of success

- Access to a large, growing pool of highly qualified talent
- A high degree of quality orientation and demonstrated service delivery expertise
- Keen emphasis on Information security reflected in the comprehensive legal framework and elaborate security practices supplemented by enabling intervention
- Improving telecommunication infrastructure
- International standards in real estate and office facilities
- Enabling (and progressively improving) business environment through strong government support; incentives, favorable regulations and policy

...delivered at a sustained and compelling cost-value proposition

Knowledge Work

- R&D work being done out of India
- Over 1700 US patents filed in 2003
  - Texas Instruments (225 patents)
  - Intel (125 patents)
  - Philips (102 patents)
  - Cisco (120 patents)
- Engineering services
- Legal and litigation support
- Financial research (Mumbai)
  - Lehman Bros Research
  - JPM

Future Growth

Growth driven by service line depth,...

...increasing supply-side maturity...
Significant headroom for growth, less than 10% of the export market captured till date.

Addressable markets of at least US$300 billion

Key drivers
- Offshoring of
  - Large 'white spaces' in major industries
  - More complex and high-risk services
  - Fragmented and high-interaction processes thanks to advances in telecom and workflow management technologies

Global offshore IT industry, FY* 2005
- 9x
- ~150-180
- 18.4
- 6.4
- 12.0

Others*

Global BPO industry**, FY 2005
- 12x
- ~120-150
- 11.4
- Addressable market
- Current size
- 6.2
- 5.2

Others*

Domestic market coming into its own, to grow by nearly 22% in FY 2006

Source: NASSCOM McKinsey Report 2005

Challenges
- Wage inflation - 10-15%
- Attrition
- Talent gap
- Indian rupee appreciation
- SLA expectations of clients
- Domain expertise
- Ability to move up the value chain
- Tax Holiday – Sunset clause in FY 2009-10

Engineering and R&D, software products hold significant opportunity for India - growing at 43% and 25% (CAGR FY 2003-06E), respectively

Made-in-India Products
- 11%

Offshore Product Development
- 15%

Software and R&D Services
- 77%

Hardware
- 53%

IT Services
- 46%

Software
- 7%

ITES-BPO
- 6%

Software
- 7%

Hardware
- 85%

IT Services
- 9%

ITES-BPO
- 6%

FY 2005

Source: NASSCOM

Demographics - Suggest Domestic Market Growth

India the largest contributor to growth in the working population over the next 5 years

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Offshore Product Development
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Software and R&D Services
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Hardware
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IT Services
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Software
- 7%

ITES-BPO
- 6%

Source: NASSCOM McKinsey Report 2005
India as a Market

- ICT investments not restricted to services, over USD 5 billion committed towards manufacturing-related investments in India by global ICT majors in 2005
- Global auto majors such as Hyundai, Ford, Skoda, Suzuki and Mahindra have made India a manufacturing base for particular models of cars
- Other multinationals such as Toyota, GM and Daimler Chrysler are making India a hub for components
- Engineering services, textiles, tourism, education - some of the newer/emerging sectors where India is expected to play a major role in the coming years

However...

- Low PC penetrations
  - 50-60 million
- Increasing mobile penetration
  - 120M subscribers
  - Adding 6/month
- A lab for m-commerce/3G
  - Spectrum becoming available in 2007
  - ISB-UMN team provided auction design
- VC/PE activity growing in mobile space
- Yahoo India’s slogan
  - “Internet on your mobile phone”
- Big impact possible at the BOTTOM OF THE PYRAMID
  - ICT changes lives!

Let’s listen to a Farmer

- Ramdeo Patel
- Resigned to the fate? Ramdeo is not alone, he actually speaks for 110 million of his fellow farmers.
- A large majority of them are in the same situation even today
- Each of whom earn just a fifth of the average income of the rest of Indians

...despite

- Excellent resources:
  - Plenty of arable land
  - Rich & diverse agro-climatic zones
  - Strong research system
  - Large & growing markets
- And legendary resourcefulness:
  - Works very hard (whole family is on the farm)
  - Takes risk (on weather, markets)
  - Is innovative (adapting technology, managing risk)

...because of

- Small size (Average < 1.5 Ha)
- Resource-poor, weak bargaining power
- Geographical dispersion (> 600,000 habitations)
- Impacts access to real-time information
- Heterogeneity (agro-ecological conditions, knowledge, investment & risk-taking ability)
- High need for customisation
- Fragmented agribusiness industry
- Poor vertical coordination, not much value addition
- Weak infrastructure (Physical, Social, Institutional)
  - Impacts access to markets, high transaction costs, increases risk (yields, prices)
Demands of the globalising trade

1. Transition from supply-driven to demand-driven value chains
   - Quality as per customer needs (& changing diets)
   - Traceability to farms & farm practices (SPS, TBT)
2. Competitiveness in Price / Value equation
   - Increased farm yields
   - Lower transaction costs along the chain
   - Further accentuating the need for... Customised knowledge
   - Real-time & relevant information
   - Access to quality inputs at competitive prices
   - Effective vertical coordination of the value chain
   - Efficient price discovery & risk management

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Capabilities of IT

- Real-time multicasting
- Seamless workflow
- Storage & retrieval of data
- Broadband connectivity
- Convergence of multimedia
  - Unbundling & rebundling the components of a transaction
  - Collaboration & vertical coordination
  - Virtual aggregation
  - Decoupling back-end from front-end

Leveraging IT: ITC eChoupal Illustration-1

- The traditional mandi system for sale Video
  - Pressure to sell due to sunk cost of transportation
- eChoupal Price Discovery Video
- eChoupal Price Discovery Part II Video
  - That unbundled the price "information" from sales "transaction", leveraging the real-time multicasting ability of Internet, and empowered the farmer to decide on when & where to sell
  - And reduced the transaction costs too (by avoiding multiple handling that is necessary in mandi system)

Leveraging IT: ITC eChoupal Illustration-2

- Farm input transaction Video
  - Again empowering the farmer, this time by bundling...
    - What to use (knowledge)
    - When to use (information)
    - Supply chain (transaction)
  - Through collaborative workflow across entities
  - Decoupling 'source' of information & knowledge with 'delivery'

Leveraging IT: ITC eChoupal Illustration-3

- Web casting of best practices videos, and FAQs
  - Access to knowledge with ease
  - Interaction across villages through chatting & emails
  - Helps in knowledge sharing among themselves and brings meaning to the 'e' prefix to choupal

Leveraging IT: ITC eChoupal Illustration-4

- One-to-one interactive ability of Internet, together with relevant testing facilities (soil / water / virus)
  - Delivers customized farming solutions
Leveraging IT: ITC eChoupal Illustration

- Broadband connectivity
  - For remote diagnostic of crops
  - And interactive extension

Bottomline

- For the farmer
  - Market aligned production, higher productivity, better farm-gate prices
- For ITC
  - Cost effective procurement of quality farm output & New Business Opportunities
- For other Partners
  - Cost effective reach (of various goods & services) to the huge market in rural India
- Above all, for the nation
  - Global competitiveness, without putting the small farmer at a disadvantage

Concluding Thoughts

Where are we today .......

- Outsourcing - A success
- Ability to scale - Well Demonstrated
- Suite of service offerings - Evolving
- Complexity - Medium - High
- Contract size and life - Small
- Businesses can be monetised - $$$$$

- Can we bring the benefits to the vast majority of the population?
- In chaos lies opportunity!!